Results of 03/24/2014 Accumulation on LHO Y1 module
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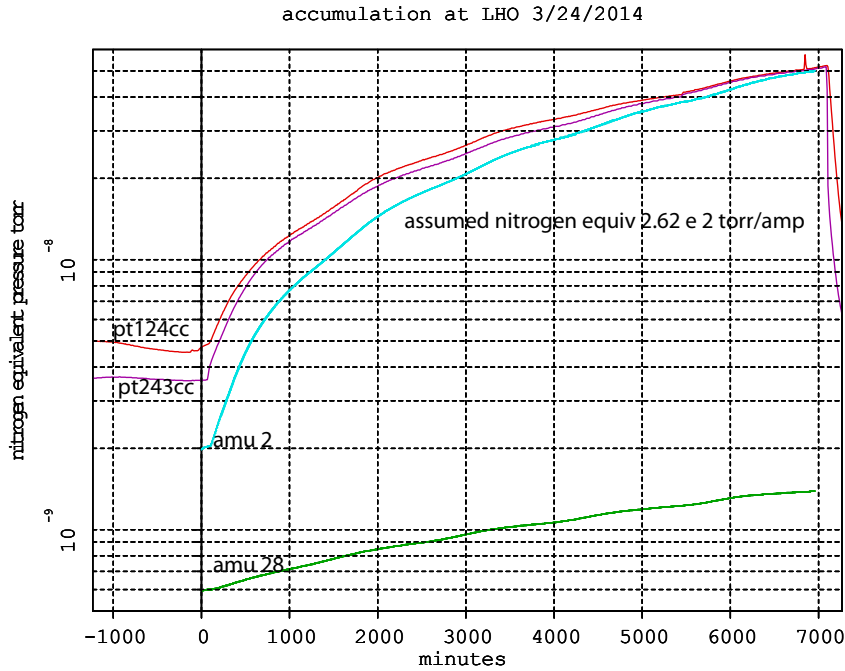
accumulation at LHO 3/24/2014

Figure 1 Cold cathode gauges PT124 and PT243 and the output of the Pfeiffer RGA at amu 2 and amu 28 with an assumed sensitivity of 2.62 x 10^2 equiv atm torr/ampere. The true hydrogen pressure is 2.2 times the equiv atm torr.
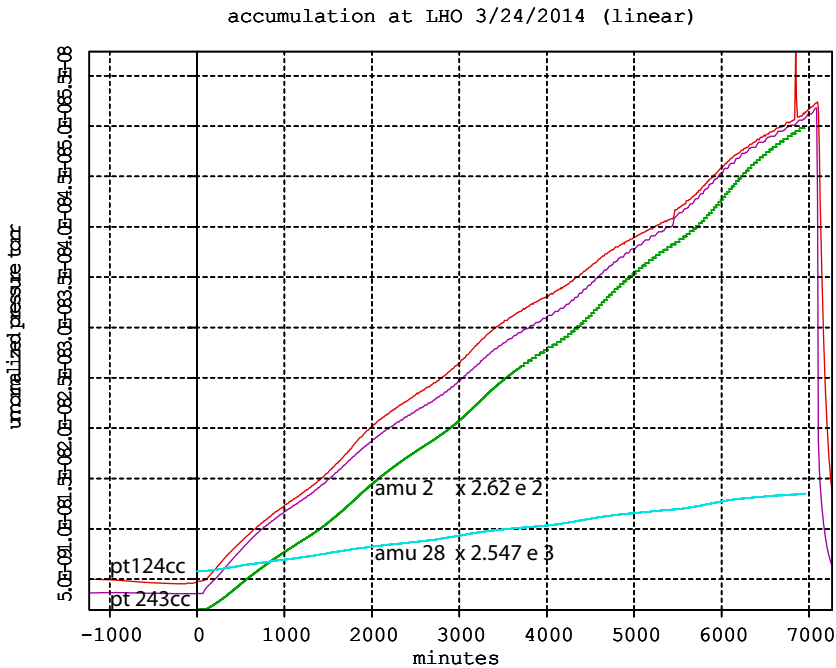
accumulation at LHO 3/24/2014 (linear)

Figure 2 Linear version of Figure 1 with assumed values of torr/amp to allow plotting on a single graph. The daily modulation of the cold cathode and amu2 pressures is due to the temperature variation of the module.

Linear least square fits are made to the two regions 1000 to 3000 minutes and 3000 to 5000 minutes. The average of the two cold cathode gauges is used as the calibration for the pressure. The RGA and the cold cathode gauges have the same sensitivity ratio of 2.2 for conversion of hydrogen from atmosphere equivalent pressures. **Table 1** provides the analysed results:

Table 1 Outgassing and leak parameters

parameter	value
amu 28 accumulation rate	$4.45 +- 0.5 \times 10^{-9}$ torr liters/sec
equivalent air leak	$5.56 +- 0.6 \times 10^{-9}$ torr liters/sec
hydrogen outgassing load	$5.80 +- 0.7 \times 10^{-7}$ torr liters/sec
hydrogen outgassing rate at 10C	$1.50 +- 0.2 \times 10^{-14}$ torr liters/sec cm^2
hydrogen outgassing rate at 23C	$6.0 +- 0.7 \times 10^{-14}$ torr liters/sec/cm^2
hydrogen outgassing rate at 23C in 2000	6.3×10^{-14} torr liters/sec/cm^2